GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: CPS 9722/1

File Number: DWERVT10121

Duration of Permit: From 26 December 2024 to 26 December 2036

ADVICE NOTE

Allocation of Offset site

In relation to the condition 6 and 7 of this permit, a total area of 5.80 hectares within Lot 2 on Deposited Plan 8964, Mimegarra Road, Mimegarra, will be attributed to the offset for this project. The nominated 5.80-hectare area contains suitable foraging habitat for Carnaby's cockatoo (*Zanda latirostris*).

PERMIT HOLDER

Alvito Pty Ltd

LAND ON WHICH CLEARING IS TO BE DONE

Lot 5 on Deposited Plan 91435, Neerabup

AUTHORISED ACTIVITY

The permit holder must not clear more than 5 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

CONDITIONS

1. Period during which clearing is authorised

The permit holder must not clear any *native vegetation* after 26 December 2026.

2. Avoid, minimise, and reduce impacts and extent of clearing

In determining the *native vegetation* authorised to be cleared under this permit, the permit holder must apply the following principles, set out in descending order of preference:

(a) avoid the clearing of *native vegetation*;

(b) minimise the amount of *native vegetation* to be cleared; and

(c) reduce the impact of clearing on any environmental value.

3. Weed and dieback management

When undertaking any clearing authorised under this permit, the permit holder must take the following measures to minimise the risk of introduction and spread of *weeds* and *dieback*:

(a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;

(b) ensure that no known *dieback* or *weed*-affected soil, *mulch*, *fill*, or other material is brought into the area to be cleared; and

(c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

4. Vegetation management – Fencing

The permit holder must:

(a) prior to clearing, construct a solid fence along the western boundary of the area cross-hatched yellow on Figure 1 of Schedule 1, to avoid indirect impacts to the adjacent threatened ecological community within Mather Reserve - Lot 8001 on Deposited Plan 411322; and

(b) within one month of installing the solid fence, notify the *CEO* in writing that the construction of the solid fence outlined in condition 4(a) has been completed.

5. Erosion management

The permit holder must:

(a) commence construction of the laydown area no later than three months after undertaking the authorised clearing activities, to reduce the potential for soil erosion and sedimentation runoff; and

(b) not cause or allow the discharge of sediments, from the area permitted to be cleared under this permit, into the adjacent Mather Reserve - Lot 8001 on Deposited Plan 411322.

6. Offset – *Revegetation* and *Rehabilitation*

(a) Within 12 months of the commencement of clearing and no later than 26 December 2025, the permit holder must implement and adhere to the *Offset Management Plan*, including but not limited to the following actions:

(i) deliberately *planting* of tubestock of flora species known to provide foraging value for Carnaby's cockatoo (*Zanda latirostris*), including but not limited to *Banksia attenuatta*, *Banksia grandis*, *Banksia menziesii* and *Banksia prionotes* within the area cross-hatched red on Figure 2 of Schedule 1.

(ii) ensuring that *planting* is undertaken to achieve the plant densities in accordance with section 4.1.4 of the *Offset Management Plan* and as outlined in Table 1 of this permit;

(iii) ensuring only *local provenance* propagating material are used to *rehabilitate* the area.

(iv) ensuring *planting* is undertaken at the optimal time;

(v) undertake *weed* control activities prior to *planting* and annually thereafter for three years or until the completion criteria, as listed in Table 1, have been met;

(vi) establish a minimum of three 10 x 10 metre quadrat monitoring sites; and

(vii) achieve and maintain the completion criteria specified in Table 1 of this permit, after the three-year monitoring period for areas *revegetated* and *rehabilitated* under this permit:

Table 1: Completion criteria

Aspect	Completion targets	Completion criteria	Monitoring
1) Planiting density/composition	Minimum density of 1-2 native plants per 1 m2	• 1 – 2 tree species (overstorey) per 10 m2. • 2 shrub species (middle storey) per 5 m2 • 1 herb species (understorey) per 2 m2	To be assessed bi-annually for three years then once yearly thereafter for the remaining term of the Permit.
2) Survival Rate	Overall 70% survival of plantings.	• 75% for trees species planted (overstorey) • 55% for shrub species planted (middle storey) • 75% of herbs planted (understorey)	To be assessed bi-annually for three years then once yearly thereafter for the remaining term of the Permit.
3) Foliage Cover	More than 60% native plant foliage cover	More than 60% cent native plant foliage cover	To be assessed bi-annually for three years then once yearly thereafter for the remaining term of the Permit.
4) Weeds	A weed reduction target for infested areas is more than 70% in the affected area.	A weed reduction target for infested areas is more than 70% in the affected area.	To be assessed bi-annually for three years then once yearly thereafter for the remaining term of the Permit.
5) Vegetation condition (Bamford Habitat Scoring System)	Improvement in vegetation condition	To achieve an overall improvement of black cockatoo habitat to a score of 8.	To be assessed bi-annually for three years then once yearly thereafter for the remaining term of the Permit.
6) Pest control	Maximum of 5% of plants affected by rabbit and/or kangaroo	Maximum of 5% of plants affected by rabbit and/or kangaroo	To be assessed bi-annually for three years then once yearly thereafter for the remaining term of the Permit.

(b) The permit holder must engage an *environmental specialist* to monitor the survival of the *plantings* established under condition 6(a) of this permit, at least twice every 12 months for the three years following planting and then at least once every three years for the remaining term of this permit.

(c) The permit holder must engage an *environmental specialist* to undertake remedial actions for area *rehabilitated* and *revegetated* where monitoring indicates that *rehabilitation* and *revegetation* has not met the completion criteria, outlined in Table 1, including:

(i) *rehabilitate* the area by deliberately planting *native vegetation* that will result in the minimum target in Table 1 and ensuring only *local provenance* propagating material is used; and

(ii) undertake further *weed* control activities.

7. Offset – Conservation covenant

Within 12 months of the commencement of clearing and no later than 26 December 2025, the permit holder must:

(a) Provide to the *CEO* a copy of a conservation covenant given under section 30B of the *Soil and Land Conservation Act 1945*, or under section 21A of the *National Trust of Australia (W.A) Act 1964,* for the protection and management of vegetation in perpetuity over the area cross-hatched red in Figure 2 of Schedule 1.

(b) In the event that a conservation covenant under section 30B of the *Soil and Land Conservation Act 1945* or under section 21A of the *National Trust of Australia (W.A) Act 1964*, is not achieved in accordance with condition 7(a) of this permit, the permit holder must provide a new offset proposal to the *CEO* for the CEO's approval.

(c) If a new offset proposal is approved by the CEO under condition 7(b) of this permit, the permit holder must implement and adhere to the approved offset proposal.

8. Vegetation management – Revegetation

The permit holder must, within 12 months of undertaking clearing authorised under this permit:

(a) undertake deliberate *planting* of at least 17 *Eucalyptus marginata* (jarrah) trees within the area cross hatched red in Figure 3 of Schedule 1;

(b) ensure only *local provenance* material is used;

(c) undertake *weed* control and watering of the trees planted under condition 8(a) for at least three years post *planting*;

(d) the permit holder must, within 24 months of *planting* the trees in accordance with condition 8(a) of this permit;

(i) engage an *environmental specialist* to make a determination that at least 17 *Eucalyptus marginata* (jarrah) trees will survive; and

(ii) if the determination made by the *environmental specialist* under condition 8(d)(i) that at least 17 *Eucalyptus marginata* (jarrah) trees will not survive, the permit holder must plant additional *Eucalyptus*

marginata (jarrah) trees that will result in at least 17 *Eucalyptus marginata* (jarrah) trees persisting within the area cross-hatched red in Figure 3 of Schedule 1.

(e) where additional *planting* of *Eucalyptus marginata* (jarrah) trees is undertaken in accordance with condition 8(d)(ii), the permit holder must repeat the activities required by condition 8(b), 8(c) and 8(d) of this permit.

9. Records that must be kept

The permit holder must maintain records relating to the listed relevant matters in accordance with the specifications detailed in Table 2.

Table 2: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	(a) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to GDA2020, expressing the geographical coordinates in Eastings and Northings; (b) the date that the area was cleared; (c) the size of the area cleared (in hectares); (d) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 2; and (e) actions taken to minimise the risk of the introduction and spread of *weeds* and *dieback* in accordance with condition 3.
2.	In relation to solid fence pursuant to condition 4	(a) Location of the solid fence, recorded using a Global Positioning System (GPS) unit set to GDA2020, expressing the geographical coordinates in Eastings and Northings; (b) date the solid fence was erected; and (c) material used to construct the solid fence.
3.	In relation to *rehabilitated* and *revegetated* areas pursuant to condition 6 of this permit.	(a) the location of any areas *rehabilitated*, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020), expressing the geographical coordinates in Eastings and Northings or decimal degrees; (b) *weed* control measures undertaken; (c) the date the *rehabilitation* was undertaken; (d) the species of the plants used in the planting; (e) a description of any other activities undertaken to implement the *Offset Management Plan;* (f) a copy of the *environmental specialist's* yearly monitoring report; and

No.	Relevant matter	Specifications
		(g) a description of any remedial actions undertaken.
4.	In relation to the Conservation Covenant pursuant to condition 7.	(a) a copy of the relevant conservation covenant under section 30B of the *Soil and Land Conservation Act 1945* or under section 21A of the *National Trust of Australia (W.A) Act 1964*.
5.	In relation to vegetation management – *revegetation* pursuant to condition 8 of this permit	(a) the date and description of the *revegetation* activities undertaken; (b) the number of *Eucalyptus marginata* (jarrah) trees planted; and (c) a copy of the *environmental specialist's* yearly monitoring report.

10. Reporting

(a) The Permit Holder must provide to the CEO on or before 30 June of each year, a written report:

(i) of records required under condition 9 of this Permit; and

(ii) concerning activities done by the Permit Holder under this Permit between 1 January and 31 December of the preceding calendar year.

(b) If no clearing authorised under this permit was undertaken between 1 January to 31 December of the preceding calendar year, a written report confirming that no clearing under this permit has been carried out, must be provided to the CEO on or before 30 June of each year.

(c) Prior to 27 September 2036, the permit holder must provide to the CEO a written report of records required under condition 10 of this Permit, where these records have not already been provided under condition 10(a) of this Permit.

DEFINITIONS

In this permit, the terms in Table 3 have the meanings defined.

Table 3: Definitions

Term	Definition
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*.
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
dieback	means the effect of *Phytophthora* species on native vegetation.
department	means the department established under section 35 of the *Public Sector Management Act 1994* (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
EP Act	*Environmental Protection Act 1986* (WA)

Term	Definition
environmental specialist	means a person who holds a tertiary qualification in environmental science or equivalent, and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit, or who is approved by the *CEO* as a suitable environmental specialist.
mulch	means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation.
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
optimal time	optimal time means the period from May to July for undertaking planting.
local provenance	means native vegetation seeds and propagating material from natural sources within 100 kilometres and the same Interim Biogeographic Regionalisation for Australia (IBRA) subregion of the area cleared.
planting	means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species.
rehabilitate, rehabilitated and rehabilitation	means actively managing an area containing native vegetation in order to improve the ecological function of that area using methods such as natural regeneration, direct seeding and/or planting, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area.
Offset Management Plan	means the document titled 'Mimegarra Road Offset Site Management Plan' (dated May 2024), DWER ref DWERDT 1035727, or future versions as approved by the CEO.
revegetate/ed/ion	means the re-establishment of a cover of local provenance native vegetation in an area using methods such as natural regeneration, direct seeding and/or planting, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area.
weeds	means any plant – (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.

END OF CONDITIONS

Jessica Burton
A/MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

3 December 2024

SCHEDULE 1

The boundary of the area authorised to be cleared is shown in the map below (Figure **1**).

Figure 1: Map of the boundary of the area within which clearing may occur

The boundary of the area subject to offset rehabilitation condition is shown in the map below (Figure 2)

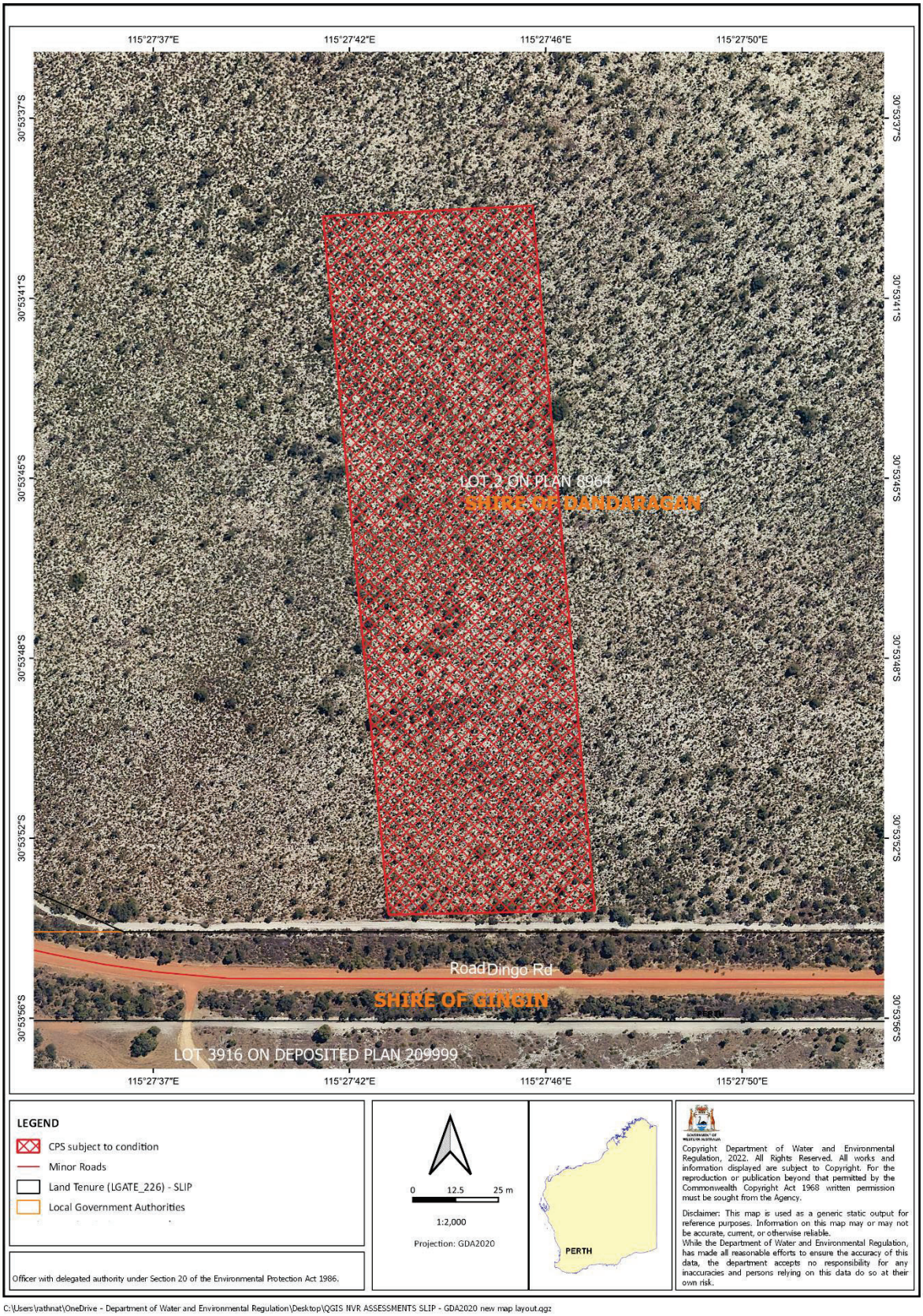

Figure 2: Map of the boundary of the area within which conditions apply

The boundary of the area subject to mitigation planting condition is shown in the map below (Figure 3)

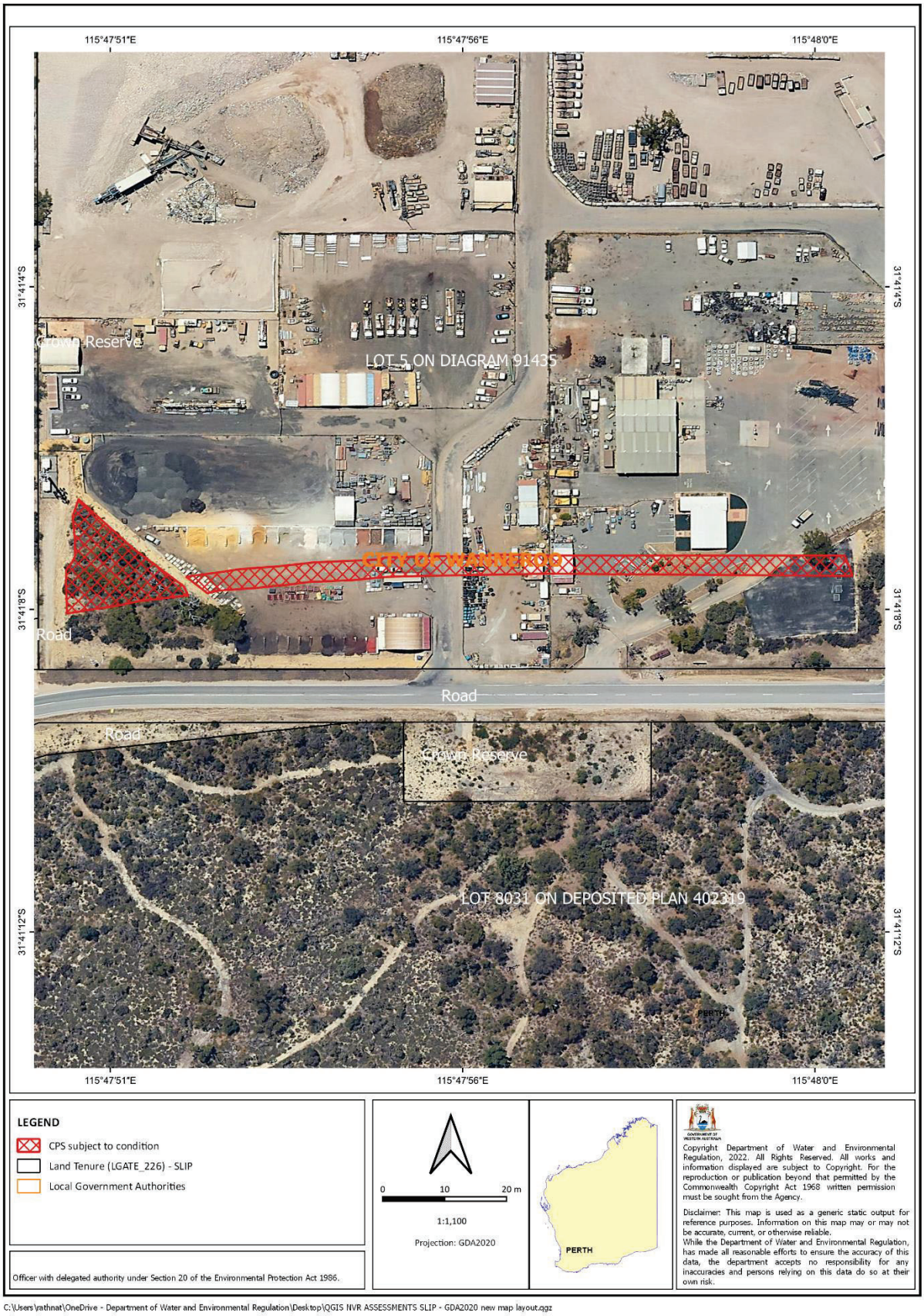

Figure 3: Map of the boundary of the area within which conditions apply

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 9722/1
Permit type:	Area permit
Applicant name:	Alvito Pty Ltd
Application received:	03 May 2022
Application area:	5 hectares of native vegetation
Purpose of clearing:	waste management and industrial laydown development
Method of clearing:	Mechanical clearing
Property:	Lot 5 on Deposited Plan 91435
Location (LGA area/s):	City of Wanneroo
Localities (suburb/s):	Neerabup

1.2. Description of clearing activities

The vegetation proposed to be cleared is contained within a single contiguous area (see Figure 1, Section 1.5) and consists of scattered individual, larger remnant trees with either a weedy understorey or patches where the understorey consisted of very low native shrubs.

The City of Wanneroo is resuming a portion of the southern end of Lot 5 to accommodate the upgrade of Flynn Drive. The purpose of the proposed clearing is to allow Alvito to move the laydown areas to the north on Lot 5 to allow Flynn Drive upgrade will occur (MBS Environmental, 2022).

1.3. Decision on application

Decision:	Granted
Decision date:	3 December 2024
Decision area:	5 hectares of native vegetation, as depicted in Section 1.5, below.

1.4. Reasons for decision

This clearing permit application was submitted, accepted, assessed and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). The Department of Water and Environmental Regulation (department) advertised the application for 21 days and no submissions were received.

In making this decision, the Delegated Officer had regard for:

- avoidance and mitigation actions implemented by the applicant, which included mitigation planting onsite;
- the site characteristics and analysis of flora, fauna and ecological communities recorded/mapped within the local area (a 10 kilometres radius buffer from the application area);
- the 10 Clearing Principles set out in Schedule 5 of the EP Act (see Appendix C);
- a detailed assessment of the clearing impacts on environmental values (see Section 3.2);
- the additional information obtained during the assessment, including;

  - a detailed flora and vegetation survey of the Site, a basic fauna survey, and assessment of any use by conservation significant black cockatoos (Carnaby's Cockatoo (*Zanda latirostris*); forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) and Baudin's Black Cockatoo (*Zanda baudinii*) that was conducted by Natural Area Consulting; and
  - offset management plan submitted by the applicant.
- development approval granted by the City of Wanneroo;
- previous assessments undertaken within this property under CPS 5362/1 (Expired) and CPS 6955/1 (Refused); and
- expert advice received from the Department of Biodiversity, Conservation and Attractions (DBCA).

In addition to the above, the Delegated Officer also took into consideration the following:

- The resuming of land along the 190 Flynn Drive frontage for an approximate distance of 25 – 37 metres to widen the road to a four-lane road has 'moved back' the existing industrial land use within Lot 5.
- The resumption will impact on all the current tenants on site as the configuration of the sub-tenancies will need to be adjusted with additional land within Lot 5 required to accommodate those changes, hence the need for clearing.
- The resumption of land will also impact on access into the site.

After consideration of the above information, as well as the avoidance, minimisation and mitigation actions taken by the applicant, the Delegated Officer determined that the clearing would result in the following significant residual impacts:

- the loss of 1.25 hectares of native vegetation that provides significant foraging habitat for Carnaby's cockatoo (*Zanda latirostris*).

To address the above significant residual impacts and applying the WA environmental offsets metric (the offsets metric) along with the environmental offsets metric guideline, and consistent with the WA Environmental Offsets Policy (2011) (the Offsets Policy) and Western Australia's Environmental Offsets Guidelines (2014) (the Offsets Guidelines), the Delegated Officer determined that the following offsets would address 100 per cent of the significant residual impacts of the clearing on the Carnaby's black cockatoo foraging habitat.

- conservation of 5.80 hectares of native vegetation that provides moderate-high quality foraging habitat for Carnaby's cockatoos with a requirement to infill plant with species preferred by Carnaby's cockatoos within the offset site.

The Delegated Officer determined that the above offset was sufficient to counterbalance the significant residual impacts associated with this project. Further information on the suitability of the offset provided is summarised in Section 4.

In addition to the above, the Delegated Officer also determined that the proposed clearing will result in:

- Indirect impact to a Threatened Ecological Community;
- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values;
- potential land degradation in the form of wind erosion; and
- loss of eleven jarrah (*Eucalyptus Marginata*) trees that may be used by the forest red-tailed black cockatoo.

The Delegated Officer determined that the proposed clearing is unlikely to have any long-term adverse impacts on the environment, and that management, mitigation and offset measures conditioned on the permit will mitigate and offset any potential impacts. The Delegated Officer decided to grant a clearing permit subject to conditions to:

- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds;
- construction of a solid fence along the western boundary of Lot 5 on Deposited Plan 91435 to avoid indirect impacts to the adjacent threatened ecological community within Mather Reserve;
- commence construction of the laydown area no later than three months after undertaking the authorised clearing activities, to reduce the potential for soil erosion and sedimentation runoff;
- not cause or allow the discharge of sediments into the adjacent Mather Reserve;
- conservation of 5.80 hectares of Carnaby's cockatoo habitat with infill planting with foraging species that are preferred by Carnaby's black cockatoos; and
- planting of 17 *Eucalyptus marginata* (jarrah) trees onsite to mitigate potential impacts on the forest red-tailed black cockatoos.

- The remainder of the site has been developed and the proposed clearing area is the only portion of the site that can be developed which the proponent owns.

- The purpose of the clearing is consistent with the planning framework as the application area is zoned as 'general industrial' under the City of Wanneroo's District Planning Scheme No.2.
- The applicant holds Development Approval to undertake the proposed work.
- according to the calculations, the offsets conditioned on the clearing permit will counterbalance 100 per cent of the significant residual impacts of the proposed clearing.

1.5. Site map

Figure 1 Map of the application area

The area crosshatched yellow indicates the area authorised to be cleared under the granted clearing permit.

2 Legislative context

The clearing of native vegetation in Western Australia is regulated under the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the polluter pays principle
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Planning and Development Act 2005* (WA) (P&D Act)

Relevant policies considered during the assessment include:

- *Environmental Offsets Policy* (2011)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- *Environmental Offsets Guidelines* (August 2014)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2016)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

The applicant has advised that there is limited opportunity to avoid clearing of the native vegetation given the City of Wanneroo's requirement to resume land to accommodate the Flynn drive road upgrade and the new surface levels required as a result of the road upgrade (MBS Environmental, 2022b).

The applicant has agreed to construct a fence between the proposed clearing and the adjacent Mathers reseve to reduce indirect impacts to the adjacent occurrence of a threaten ecological community.

The applicant has agreed to plant Jarrah trees onsite to mitigate the impact of clearing of 11 jarrah trees that may provide a foraging resource for Forest red-tailed black cockatoos.

It was determined that an offset to counterbalance the significant residual impacts to Carnaby's cockatoo foraging habitat was necessary. In accordance with the Government of Western Australia's *Environmental Offsets Policy* and *Environmental Offsets Guidelines*, these significant residual impacts have been addressed through the conditioning of environmental offset requirements on the permit.

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix B) and the extent to which the impacts of the proposed clearing present a risk to biological, conservation, or land and water resource values.

The assessment against the clearing principles (see Appendix C) identified that the impacts of the proposed clearing present a risk to fauna, adjacent vegetation and land resources. The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

3.2.1. Biological values (fauna) - Clearing Principles (b)

Assessment

A site inspection of the application area indicated that the proposed clearing area is (MBS Environmental, 2023a):

- heavily disturbed through historic fires, unauthorised access and rubbish dumping.

- The majority of trees are showing signs of significant fire damage.
- The vegetation primarily comprised of individual, larger remnant trees with either a weedy understorey or patches where the understorey consisted of very low native shrubs.
- The number of Banksia trees present within the proposed clearing area is estimated to be 10 – 12 trees, with hakea understorey also in very low numbers.

Fauna habitat within the application area is described as *Eucalyptus Marginata* open woodland (MBS Environmental, 2022). During a site visit conducted by MBS Environmental, 11 *Eucalyptus marginata* (jarrah) and 12 banksia trees were identified (MBS Environmental, 2023a).

According to available databases, a total of 40 conservation significant fauna species have been recorded within the 10 kilometres radius local area. Noting the habitat requirements, distribution of the recorded species, the mapped vegetation type, the condition (Keighery, 1994) of the vegetation within the application area, as well as the findings of the fauna assessment (MBS Environmental, 2022) that includes a black cockatoo habitat assessment, the application area is likely to comprise habitat for the following species:

- Carnaby's black cockatoo (*Zanda latirostris*)
- Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*)
- Peregrine falcon (*Falco peregrinus*)
- Western brush wallaby (*Notamacropus Irma*)
- a short-tongued bee (*Leioproctus contrarius*)
- graceful sunmoth (*Synemon gratiosa*)

Carnaby's black cockatoos and Forest red-tailed black cockatoo (FRTBC) – endangered/vulnerable

The application area is mapped within the modelled distribution of Carnaby's cockatoo and approximately 80 per cent of the application area is mapped within the modelled distribution of FRTBC. Carnaby's and the FRTBC are classified as threatened under the BC Act. Under the EPBC Act, the Carnaby's are listed as Endangered, and the FRTBC are listed as Vulnerable.

The seasonal movements of black cockatoos mean they require large areas of habitat for breeding, night roosting and foraging, as well as connectivity between these habitats to assist their movement through the landscape (DAWE, 2022). The assessment has considered the potential impacts of the proposed clearing on black cockatoos.

Available databases indicate that there are 52 black cockatoo roost sites recorded within a 12 km radius with the closest record being approximately 1.8 kilometres from the application area. There are 17 white-tailed black cockatoo breeding sites (14 artificial and 3 natural; 5 potential and 11 confirmed) within a 12 kilometre buffer from the application area, the closest being approximately 7 kilometres from the application area.

Foraging habitat

Critical foraging habitat for black cockatoo species includes foraging material that is within an approximate six-to-12-kilometre radius of a nesting site and within six kilometres of a night roosting site. The preferred foraging habitat for each of the species is described below (DAWE, 2022):

- Carnaby's cockatoo – Native shrubland, kwongan heathland and woodland on seeds, flowers and nectar of native proteaceous plant species (Banksia spp., Hakea spp. and Grevillea spp.), as well as Callistemon spp. and Marri.
- Forest red-tailed black cockatoo – Primarily seeds of jarrah and marri in woodlands and forest, and edges of Karri forests, including Wandoo and Blackbutt. Forages on Allocasuarina cones, fruits of *Persoonia longifolia* (snottygobble) and C. haematoxylon (mountain marri). Other less important foods include Blackbutt, Bullich, *Allocasuarina fraseriana*, Hakea spp., Tuart, E. decipiens (redheart moit) and E. lehmannii (bushy yate).

During the fauna survey, no recent evidence of foraging was observed within the application area by Carnaby's cockatoo and no evidence of use by FRTBC were observed (MBS Environmental, 2022). However, scattered individuals of flora species with high foraging value for Carnaby's cockatoo birds are present (proteaceous and myrtaceous species) within the application area.

Although the proposed clearing area is five hectares, based on the condition of the vegetation (Keighery, 1996) and the scattered nature of the vegetation it is unlikely that the quantity of foraging species available for Carnaby' s cockatoo equates to five hectares. Based on this finding, it has been established that no more than 1.2 hectares of native vegetation with foraging value for Carnaby's cockatoo is present within the application area (MBS Environmental, 2023a).

Based on the above findings and the site context, it is considered that the application area consists of foraging habitat for Carnaby's black cockatoos and has the potential to support nearby roosting and breeding individuals. Clearing of jarrah and banksia species within the swan coastal plain is a significant residual impact and an offset to counterbalance the residual impacts to Carnaby's foraging habitat is required.

Eleven jarrah trees with a Diameter of Breast Height (DBH) greater than 50 centimetres are identified within the application area. Jarrah trees are a primary foraging habitat for the forest Red-tailed black cockatoos (FRTBC). However, during the site inspection (MBS Environmental, 2022), no evidence related to FRTBC were observed. The application area is within the edge of the FRTBC distribution zone. According to the DBCA databases, only seven records are identified from the local area with the most recent record in 2020. The assessment has concluded that the proposed clearing would not result in a significant residual impact to FRTBC. However, in the recent times, FRTBC have been observed within the swan coastal plain and there is potential for these species to utilise the jarrah trees present within the application area. Therefore, to mitigate this potential impact, the applicant has proposed to plant 17 jarrah and/ or marri trees around the perimeters of Lot 5 in which the clearing is proposed (MBS Environmental, 2023b). A condition has been included on the permit requiring the planting o 12 Jarrah trees within Lot 5.

Breeding habitat

Critical breeding habitat for black cockatoo includes woodlands or forest, as well as partially cleared woodland or forest and isolated trees. Black cockatoos nest in hollows of live or dead trees (many eucalypt species may provide suitable hollows) particularly salmon gum, wandoo, tuart, jarrah, flooded gum (E. rudis), york gum, powderbark (E. accedens), karri, marri, bullich and blackbutt (E. patens) (DAWE, 2022).

Biological surveys of the property were undertaken in 2006 and 2012 by ATA Environmental (2007) and PGV Environmental (2012) respectively. The 2006 Survey mapped three potential Carnaby's cockatoo breeding trees within the application area. The 2012 Survey identified 26 trees with a DBH of greater than 500 millimetres on Lot 5, nine of which contained hollows and none of which were of sufficient size to support breeding black cockatoos. Parks and Wildlife advised that if Carnaby's cockatoo breeding did occur on Lot 5, subsequent degradation through fires in the area are likely to have destroyed suitable hollows (Parks and Wildlife, 2017). The former Department of Environment Conservation (DEC) advised such degradation is likely to continue with encroaching development in the area, thus the vegetation is unlikely to recover to sustain breeding habitat in the future (DEC, 2013). Therefore, the proposed clearing is unlikely to impact significant breeding habitat for Carnaby's cockatoo.

An additional assessment of the black cockatoo habitat trees was undertaken in 2021 by Natural Area Consulting on behalf of MBS Environmental (2022). During the site assessment, eleven habitat trees with a DBH of greater than 50 centimetres were recorded within the survey area. Large hollows were observed on trees seven and ten with an adequate entrance site that could be utilised by the black cockatoo birds. These hollows were then further inspected with a GoPro camera on a telescope pole to confirm their likelihood of been potential breeding sites. The hollows were identified to be superficial and not suitable for the black cockatoo nesting with Tree seven being utilised by European Honeybee (MBS, Environmental, 2022). Photographs of the hollows are represented in Appendix G. The Department has requested for the applicant to retain these habitat trees where possible, however the applicant had advised that there is limited opportunity to avoid clearing of the habitat trees given the City of Wanneroo's requirement to resume the land accommodate for the upgrade of Flynn Drive (MBS Environmental, 2023a). The applicant however has indicated that the Tree 7 may be able to be kept. The department has implemented a condition on the clearing permit to avoid and minimise the proposed clearing to ensure that only those trees that are necessary to be cleared to accommodate the final design of the laydown area are removed. Further, the applicant is required to plant 17 jarrah trees within Lot 5.

Roosting habitat

Roosting habitat is defined as a suitable tree (generally the tallest) or group of tall trees, native or introduced, usually close to an important water source, within an area of quality foraging habitat within the range of each black cockatoo species (DoEE, 2017). Individual night roosting sites need suitable foraging habitat and water within six kilometres (DAWE, 2022). Based on the site survey, no roosting activities or evidence of roosting were observed within the application area. The intact remnant vegetation to the west of the application area is likely to contain tall trees that provide roosting habitat for the black cockatoos, and noting the size of the application area, it is not likely that a significant residual impact would occur to black cockatoo roosting habitat from the proposed clearing.

Peregrine falcon (*Falco peregrinus*) – OS

The species is found in most habitats, from rainforests to the arid zone and at most altitudes, from the coast to alpine areas. It requires abundant prey and secure nest sites and prefers coastal and inland cliffs or open woodlands near water and may even be found nesting on high city buildings (Australian Museum, 2020). This species is widespread, highly mobile and is found in various habitats. The application area may comprise suitable habitat for this species,

however, noting habitat preferences and the small extent of the proposed clearing, the application area is unlikely to comprise a significant habitat for this species.

western brush wallaby (*Notamacropus Irma*) – Priority 4
Western brush wallaby inhabits open forest or woodland, particularly favouring open, seasonally wet flats with low grasses and open scrubby thickets. It is also found in some areas of mallee and heathland. The species is highly mobile and does not rely on specialist niche habitats (DBCA, 2012).

The species has been recorded approximately 0.56 kilometres from the application area. Based on the habitat preference by the western brush wallaby, it is unlikely the application area consist of significant habitat for this species. Noting, the intact remnant vegetation to the west of the application area, it is likely the species would prefer to reside at this location in comparison the isolated, scattered nature within the application area.

a short-tongued bee (*Leioproctus contrarius*) - Priority 3
A short-tongued bee is a poorly known invertebrate with a limited range along the Swan Coastal Plain. This species is known to be associated with Scaevola sp repens var. repens and Lechenaultia spp (Atlas of living Australia, n.d). According to the flora data from the flora survey, Scaevola sp repens was identified within the application area. However, it is noted that there is only one record of this species from the local area which was identified 3.84 kilometres away. Noting the habitat protected in the surrounding areas that is also likely to consist of similar habitat types to the application area, the proposed clearing would be unlikely to result in significant impact to this species.

graceful sunmoth (*Synemon gratiosa*) – Priority 4

Graceful sunmoth is associated with two habitat types (DAWE, 2008):

- Coastal heathland on Quindalup dunes, where it is restricted to secondary sand dunes where the host plant *Lomandra maritima* is locally abundant; and
- Banksia woodland on Spearwood and Bassendean dunes, where the second known host plant *L. hermaphrodita* is widespread).

Noting the vegetation identified within the application area (MBS Environment, 2022), the application area provides suitable habitat for this species. There are 41 records of this species recorded within the local area, with the closest record identified 0.21 kilometres from the application area. Graceful summoth is known from 842 records with distribution of approximately 600 kilometres north-south and 42 kilometres east-west.

The Sunmoths only breed on two known species *Lomandra maritima* and *Lomandra hermaphrodita* (mat rushes) (DAWE, 2008), both of which were identified within the application area in very limited numbers. According to the survey, the low number of host plants suggests that the presence of the moth within the site is unlikely (MBS Environmental, 2022a).

Taking into consideration the known distribution of the species, its mobility and the extent of vegetation, which is present in the surrounding area, the application area is unlikely to provide significant habitat for graceful sunmoth. DBCA has advised that significant impact to the graceful sun moth is unlikely from the proposed clearing due to the increased number of records on the Swan Coastal Plain, which has also led to the downgrading of this species listing (DBCA, 2023).

Conclusion
Significant habitat refers to the resources (breeding, resting and feeding), connectivity or habitat area for a species or community that is critical for its survival. Based on this, the application area comprises of significant habitat for Carnaby's black cockatoos.

Noting the extent and the location of the application area, within a broader remnant, it is considered that the proposed clearing is unlikely to have a significant impact on other conservation significant fauna that were considered likely to occur within the application area.

Conditions
To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- Avoid and minimise the proposed clearing;
- Offset – conservation of a 5.80 hectares area within Lot 2 on Deposited Plan 8964, Mimegarra Road, Mimegarra to offset the impact to Carnaby's black cockatoo habitat; and
- Planting of 17 jarrah trees onsite.

3.2.2. Biological values (Threatened ecological community) - Clearing Principles (d)

Threatened Ecological Community (TEC) '*Banksia attenuata* woodland over species rich dense shrublands' (SCP20a) is located approximately 10 metres west of the application area. The application area is located within the buffer zone of this TEC.

A flora survey undertaken by ATA Environmental (2007) determined this TEC is not located within the application area. The Department of Environmental and Conservation (now DBCA) confirmed the methodology and statistical analysis undertaken in the ATA Environmental (2007) survey is sufficient to determine that this TEC is not located within the application area (DEC, 2013). An additional survey was undertaken by Natural Area consulting in 2021, that also concluded that the vegetation within the application area is not representative of the *Banksia attenuata* woodland TEC given the degraded condition and scattered occurrence of Banksia within the site (MBS Environmental, 2022).

Given the proposed clearing area is located in close proximity to the mapped TEC, the proposed clearing may degrade the TEC indirectly through:
- weed invasion or spread
- introduction of fire
- dieback disease spread
- dust impacts; and
- drainage impacts.

The department sought advice from DBCA in regard to the impacts of the proposed clearing on the adjacent TEC. DBCA has advised that if a vegetative buffer is unable to be retained, consideration should be given to installing a solid fence between the application area and Mather reserve where the TEC is present. This management action is likely to reduce the risk of indirect impacts from dust, weeds and dieback to the TEC. DBCA also advised that surface water management within the application area is important to ensure that no surface water from the application area flow towards the TEC (DBCA, 2022).

The applicant has agreed to build a solid fence between the TEC and the proposed clearing area to ensure that no modification to the existing TEC occurs as a result of the proposed clearing. Further, the department notes that the Development Approval by the City of Wanneroo has conditioned that the works are to be implemented in accordance with an urban water management plan.

Conclusion

The proposed clearing is likely to indirectly impact on the '*Banksia attenuata* woodland over species rich dense shrublands' (SCP20a) TEC located to the west of the application area. However, given the installation of the solid fence and the standard water erosion management practices, it is unlikely that a significant impact to the adjacent TEC would occur as a result of the proposed clearing and its associated activities.

Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- Installation of a solid fence between the application area and the Mather Reserve to the west to mitigate indirect impact to the TEC.
- Surface water management to prevent drainage into Mather Reserve
- Weed an dieback management

3.2.3. Land and water resources (wind erosion) - Clearing Principles (g)

Assessment

The application area is mapped as soil type B24 which is described as 'Undulating dune landscape underlain by aeolianite which is frequently exposed with small swales of estuarine deposits. Chief soils are siliceous sands, with smaller areas of brown sands and leached sands in the wetter sites' (DPIRD, 2019).

The proposed clearing poses a risk of land degradation through wind erosion, as the sandy soils within the application area are considered to be highly erodible. Land degradation hazards mapping indicates more than 70 per cent of the mapped land unit has a high to extreme risk of wind erosion. Given the sandy soils present on site, the proposed clearing may result in wind erosion and, without appropriate management of the exposed surfaces, the proposal may cause appreciable land degradation. If appropriate management measures such as adequate dust suppression on exposed surfaces are put in place, then it is likely that the environmental impacts caused by wind erosion can be managed. Ensuring works commence within three months of clearing will minimise exposure of bare soils.

No watercourses or wetlands are mapped within the application area. Given this and the mapped soil type, the application area is not likely to cause land degradation through water erosion, waterlogging or eutrophication.

Conclusion
Based on the above assessment, the proposed clearing may cause land degradation through wind erosion. Ensuring works commence within three months will minimise this risk.

Conditions
To address potential impacts to nearby native vegetation from the proposed clearing, works will be required to commence within three months of clearing.

3.3. Relevant planning instruments and other matters

Other relevant authorisations required for the proposed land use include:

- Development approval under the *Planning and Development Act 2005* (issued by the City of Wanneroo)

The applicant obtained Development Approval from the City of Wanneroo on 19 November 2024. As the site is zoned 'General Industrial' under the City's District Planning Scheme No. 2 all development in the northern portion of the site is to be compatible with the purpose and objectives of the General Industrial zone. Therefore, any clearing and works in the proposed area require development approval of the City and must be compatible with the purpose and objectives of the General Industrial zone (City of Wanneroo, 2022).

The department noted that Alvito applied for a clearing permit for the clearing of 3.51 hectares of native vegetation within Lot 5 on Diagram 91435 for the purpose of constructing a hardstand area on 15 February 2016. This clearing permit application was refused by the department on 07 January 2019 given Alvito failed to provide the department with an offset proposal and evidence of planning approval.

Advice was received from the Department's water licencing team regarding approvals under the Rights In Water and Irrigation Act 1949. Alvito was granted GWL179117(4) to take 40,000 kilo Liters from the superficial aquifer for dust suppression for earthworks and construction purposes; firefighting purposes; irrigation of 0.2 hectares of lawns and gardens; and product processing washdown purposes at Lot 5 Flynn Drive Neerabup. The licence is valid from 25 March 2022 to 31 January 2027 (DWER, 2022).

No Aboriginal sites of significance have been mapped within the application area. It is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972* (WA) and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

4 Suitability of offsets

Through the detailed assessment outlined in Section 3.2 above, the Delegated Officer has determined that the following significant residual impacts remain after the application of the avoidance and mitigation measures summarised in Section 3.1:

- Loss of approximately 1.25 hectares of native vegetation that provides moderate quality foraging habitat for Carnaby's black cockatoo (EN).

To offset the significant residual impact to Carnaby's black cockatoo foraging habitat, the applicant proposed a land acquisition offset with a focus on enhancing current foraging habitat values of the offset area through implementation of an agreed range of land management measures, which includes infill planting and weed control (MBS Environmental, 2024). The proposed offset area is located within Lot 2 on Plan 8964 Mimegarra Road in the locality of Mimegarra within the Shire of Dandaragan. The distance from the application area to the offset area is approximately 92 kilometres.The proposed offset site is mapped within the distribution zone of the Carnaby's black cockatoo species and is located within the Swan Coastal Plain IBRA region.

The entire area within which the offset is proposed is approximately 136 hectares and the land manager of the offset site will be Dingo Road Pty Ltd, who is a subsidiary of Meteor Stones. Dingo Pty Ltd is offering portions of the 136 hectares to various proponents to fulfill their offset requirements. Alvito has offered to contribute towards the purchase (become a shareholder) and the ongoing maintenance of the land to meet offset requirements of this clearing application (MBS Environmental, 2024).

The management of the proposed offset site will be the direct responsibility of the various proponents that are shareholders of the site. Alvito will be contributing to annual maintenance costs on pro rata basis. A comprehensive management plan for the site has been prepared (MBS Environmental, 2024).

The proposed offset area will be placed under a conservation covenant under sectoin 30B of the *Soil and Land Conservation Act 1945*, or under section 21A of the *National Trust of Australia (W.A) Act 1964,* for the protection and management of vegetation in perpetuity. As shareholdings in the site are confirmed, in perpituity protection will be placed over each offset area with the eventual expectation the entire site will be subject to one or a collectives of conservation covenants that will provide protection for an area of Carnaby's cockatoo foraging habitat in perpetuity.

Findings of the offset site include (MBS Environmental, 2024):

- Approximately 90% of the site is Banksia Woodland with species including *Banksia attenuata*, *Banksia prionotes*, and *Banksia menziesii*.
- Evidence of recent foraging by Carnaby's cockatoo was confirmed on *Banksia attenuata* and *B. menziesii* cones, and a feather from a bird was found on site.
- The site is likely to support a range of other conservation significant species, including the Western Brush Wallaby and some reptiles.
- The site occurs within the mapped distribution zone for Carnaby's cockatoos and is located on the Swan Coastal Plain.

An offset calculation using the WA offset metric 'calculator' was undertaken by the department. The calculation has identified that:

- To offset clearing of 1.23 hectares of native vegetation that provides moderate quality foraging habitat for black cockatoos, an offset area of 5.80 hectares that provides moderate-high quality foraging habitat for Carnaby's cockatoos with a requirement to infill plant with species preferred by Carnaby's cockatoos, is required.

The applicant has provided evidence that Meteor Stone has agreed to allow Alvito to utilise the area purchased by Dingo Raod Pty Ltd to fulfill the offset requirements. It is expected that the conservation covenants will be created through the National Trust or via the provisions of the *Soil and Land Conservation Act 1945* (WA) both of which allow for the setting of conservation covenants in perpetuity (MBS Environmental, 2024).

Aims of the rehabilitation activities within the site will include:

- Increasing the density of flora species present.
- Enhance the presence of preferred Carnaby's Cockatoo preferred foraging species, including *Banksia attenuata*, *Banksia grandis*, *Banksia menziesii*, and *Banksia prionotes*, through to provide a greater number of plants across the site that that will provide a food source for the birds.
- Improve the habitat quality.
- Control the various threatening processes that might otherwise result in further degradation of the site or reduce the effectiveness of planned revegetation/management activities.

Summary

The department's offset calculations have determined that the following offset is required to fully counterbalance the impacts from the proposed clearing:

- 5.80 hectares of foraging habitat in very good condition (Keighery, 1994) for the Carnaby's cockatoos to be conserved in perpetuity under a conservation covenant.

The department has undertaken an assessment of the proposed offset using the offsets metric and in accordance with the WA Environmental Offset Policy (2011) and Offset Guidelines (2014). It was determined that the proposed offset is sufficient to counterbalance 100 per cent of the significant residual impacts of the proposed clearing.

The Delegated Officer considers that offset adequately counterbalance the significant residual impacts listed above. The justification for the values used in the offset calculation is provided in Appendix E.

End

Appendix A. Additional information provided by applicant

Information	Description
Supporting Information Native Vegetation Clearing Permit Application 190 Flynn Drive, Neerabup (MBS Environmental, 2022)	The supporting information submitted by MBS Environmental include: • An assessment of site environmental values • A flora and vegetation survey conducted by Natural Area consulting • Review of habitat trees with a DBH of greater than 50 centimetres conducted by Natural Area consulting in 2021.
Response to Request for further information #1 (MBS Environmental, 2023a)	The Department sent a 'request for further information' letter to the applicant 14 November 2022. A response to the items listed in the RFI letter was received on 09 January 2023.
Response to Request for further information #2 (MBS Environmental, 2023b)	The Department sent a second 'request for further information' letter to the applicant 19 April 2023. A response to the items listed in the RFI letter was received on 15 November 2023.
Offset proposal (MBS Environmental, 2024)	MBS Environmental submitted an offset proposal for Department's review.

Appendix B. Site characteristics

B.1. Site characteristics

The information provided below describes the key characteristics of the area proposed to be cleared and is based on the best information available to the department at the time of this assessment. This information was used to inform the assessment of the clearing against the Clearing Principles, contained in Appendix C.

Characteristic	Details
Local context	The area proposed to be cleared is a 5 hectare section of a 89-hectare isolated patch of native vegetation in the intensive land use zone of Western Australia. It is adjacent to an 84-hectare patch consisting of Mather Reserve. Spatial data indicates the local area (5-kilometre radius from the centre of the area proposed to be cleared) retains approximately 33.7 per cent of the original native vegetation cover.
Ecological linkage	The vegetation within the application area is contiguous with a known Perth Regional Ecological Linkage. The application area is approximately 350 metres north of the mapped corridor. The mapped ecological linkage relates to a series of interconnected Bush Forever sites. The application area is peripheral to this corridor and is not critical to its environmental function.
Conservation areas	The application area is 350 metres north of Bush Forever site 295 and is connected to the site by contiguous native vegetation. The adjoining patch of vegetation is known as Mather Reserve.
Vegetation description	Supporting information supplied by the applicant indicate the vegetation within the proposed clearing area consists of *Euclyptus marginata* and Banksia open woodland over weedy undertsorey.

Characteristic	Details
	Representative photos are available in Appendix F. The broadly mapped vegetation type is: • SCP association 49; Karrakatta Complex-Central and South, which is described as predominantly open forest of *Eucalyptus gomphocephala* (Tuart) - *Eucalyptus marginata* (jarrah) - *Corymbia calophylla* (Marri) and woodland of *Eucalyptus marginata* (jarrah) - Banksia species. *Agonis flexuosa* (Peppermint) is co-dominant south of the Capel River. The mapped vegetation type retains approximately 23.49 per cent of the original extent (Government of Western Australia, 2019).
Vegetation condition	Vegetation survey (MBS Environmental, 2022) indicate the vegetation within the proposed clearing area is in ranges from completely degraded to good (Keighery, 1994) condition. The full Keighery (1994) condition rating scale is provided in Appendix D. Representative photos and mapping are available in Appendix F.
Climate and landform	The climate experienced in the area is Mediterranean, with dry, hot summers and cool, wet winters. average rainfall is 762.1 millimetres per annum, with the majority falling between May and August. The application area is mapped within the Karrakatta sand yellow phase (211Sp_Ky) within the Spearwood system described as low hilly to gentle undulating terrain.
Soil description	Yellow sand over limestone at one to two meters.
Land degradation risk	Soils mapped within the clearing footprint have a high risk of wind erosion and subsurface acidification and a medium risk of phosphorus export. See land degradation table in Section C.4.
Waterbodies	The desktop assessment and aerial imagery indicated that no perennial watercourses or wetlands transect the area proposed to be cleared.
Hydrogeography	The application area is not within a surface water proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act), or a gazetted Public Drinking Water Source Area. The clearing footprint is within the Wanneroo Groundwater Area proclaimed under the RIWI Act. Hydrogeology of the application area is surficial sediments to shallow aquifers (sand, gravel lithology). Groundwater salinity within the application area is mapped at less than 500 milligrams per litre total dissolved solids.
Flora	According to the desktop assessment, 28 species of conservation significant flora species are recorded from the local area, which comprise of four threatened and 24 priority flora. The most recorded conservation significant flora from the local area is the *Jacksonia sericea*. The closest recorded flora is *Poranthera moorokatta*, located approximately 1.49 kilometres from the application area.
Ecological communities	The application area is mapped within the Banksia Woodland of the Swan Coastal Plain ecological community. However, a flora survey determined that the vegetation within the application area is not representative of the Banksia Woodland of the Swan Coastal Plain ecological community.

Characteristic	Details
	The critically endangered threatened ecological community, *Banksia attenuata* woodlands over species rich dense shrublands (floristic community type 20a as originally described in Gibson et al. 1994) is mapped immediately to the west of the application area.
Fauna	According to the available databases, 40 conservation significant fauna records were identified from the local area with species of 22 birds, six invertebrates, nine mammals and three reptiles. The closest fauna record to the application area was the *Synemon gratiosa* (graceful sunmoth) located at approximately 0.21 kilometres from the application area. Carnaby's cockatoo was the most recorded species from the local area. The application area is within the modelled distribution zone of the Carnaby's cockatoo with approximately 80 per cent of the application area falling within the modelled distribution zone of the forest red tailed black cockatoos. Fifty-two confirmed roost sites and 17 breeding sites s (14 artificial and 3 natural; 6 potential and 11 confirmed) was identified within a 12 kilometre radius buffer from the application area.

B.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Swan Coastal Plain	1,501,221.93	579,813.47	38.62	222,916.97	14.85
Vegetation complex					
Karrakatta Complex – central and South**	53,080.99	12,467.20	23.49	4,282.73	8.07
Local area					
10km radius	36,118.71	12,384.43	33.7	-	-

*Government of Western Australia (2019a)

**Government of Western Australia (2019b)

B.3. Fauna analysis table

Species common name	Species scientific name	Conservation status	Number of known records (total)	Year of the most recent record	Distance of closest record to application area (km)
Calyptorhynchus banksii naso	forest red-tailed black cockatoo	VU	7	2020	2.09
Calyptorhynchus latirostris	Carnaby's cockatoo	EN	630	2020	0.21
Leioproctus contrarius	a short-tongued bee	P3	1	1982	3.84
Notamacropus irma	western brush wallaby	P4	7	2006	0.79
Falco peregrinus	Peregrine falcon	OS	10	2013	1.90

Species common name	Species scientific name	Conservation status	Number of known records (total)	Year of the most recent record	Distance of closest record to application area (km)
Synemon gratiosa	graceful sunmoth	P4	47	2019	0.21

B.4. Land degradation risk table

Risk categories	***211Sp__Ky - Karrakatta Sand Yellow Phase***
Wind erosion	H2: >70% of map unit has a high to extreme wind erosion risk
Water erosion	L2: 3-10% of the map unit has a very high to extreme hazard
Salinity	L2: 3-10% of the map unit has a moderate or high hazard or is presently saline
Subsurface Acidification	M2: 30-50% of the map unit has a high susceptibility
Flood risk	L1: <3% of the map unit has a moderate to high hazard
Water logging	L2: 3-10% of the map unit has a moderate to very high to risk
Phosphorus export risk	L2: 3-10% of the map unit has a high to extreme hazard

Appendix C. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: The area proposed to be cleared does not contain habitat for conservation significant flora species and is not representative of a conservation significant ecological community. A flora and vegetation survey did not identify any threatened for priority flora species within the application area (MBS Environmental, 2022). Based on the survey findings, the number of Banksia trees on site were very limited and were not the dominant overstorey species. Therefore, the Banksia Woodlands of the Swan Coastal Plain ecological community was determined to be absent within the application area. The vegetation does contain significant foraging species for the Carnaby's black cockatoo birds.	Not likely to be at variance	No
Principle (b): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna."* Assessment: The area proposed to be cleared contains foraging habitat significant for Carnaby's black cockatoo species and may provide habitat for other conservation significant fauna species to traverse through the application area.	At variance	Yes *Refer to Section 3.2.2, above.*
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: There is one record of rare flora at approximately 3.9 kilometres from the proposed clearing area.	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
This species typically occurs in shallow sand on limestone ridges and slopes, where it emerges from heath and thicket of parrot bush (*Banksia sessilis*) and Chenille honey-myrtle (*Melaleuca huegelii*) (Brown et al., 1998). The habitat types identified within the area under application is jarrah (*Eucalyptus marginata*) woodland over diverse heath to shrubland, which is not typical habitat for this species. A flora and vegetation survey did not identify any threatened for priority flora species within the application area (MBS Environmental, 2022). Given the above, it is not considered likely that the vegetation proposed to be cleared includes or is necessary for the continued existence of rare flora. Therefore, the clearing as proposed is not likely to be at variance to this Principle.		
Principle (d): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community."* Assessment: The area proposed to be cleared does not contains species that can indicate a TEC. The flora and vegetation survey did not identify the presence of any TEC within the application area (MBS Environmental, 2022). The application area falls within the buffer of a TEC that is *Banksia attenuata* woodlands over species rich dense shrublands (floristic community type 20a as originally described in Gibson et al. 1994).	May be at variance	Yes *Refer to Section 3.2.2, above.*
Environmental value: significant remnant vegetation and conservation areas		
Principle (e): *"Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."* Assessment: The extents of the mapped vegetation type and native vegetation in the local area are inconsistent with the national objectives and targets for biodiversity conservation in Australia, that is to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). However, within defined constrained areas on the Swan Coastal Plain, the Environmental Protection Authority has set a threshold for retention of 10 per cent of the pre-clearing extent of each native vegetation complex. The area under application has been classified as a constrained area. The vegetation complex and the vegetation remaining within the local area of the application area is above the 10 per cent threshold. Although the application area is significant remnant due to its fauna and Linkage values, as the application area is located within a defined constrained area and the mapped vegetation complex retain above 10 per cent native vegetation, the proposed cleating is not likely to be at variance to this principle.	Not likely to be at variance	No
Principle (h): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area."* Assessment: Given the distance to the nearest conservation area, the proposed clearing is unlikely to have an impact on the environmental values of surrounding conservation areas.	Not likely to be at variance	No
Environmental value: land and water resources		

Assessment against the clearing principles	Variance level	Is further consideration required?
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: No waterbodies are mapped within or near the application area and the vegetation present within the application area is not consistent with riparian vegetation.	Not likely to be at variance	No
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: Given the sandy soils present on site, the proposed clearing may result in wind erosion, and, without appropriate management of the exposed surfaces, the proposal may cause appreciable land degradation. The proposed clearing is not likely to result in any other form of land degradation.	May be at variance	Yes *Refer to Section 3.2.3, above.*
Principle (i): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water."* Assessment: Given no water courses, wetlands or Public Drinking Water Sources Areas are recorded within or within close proximity to the application area, the proposed clearing is unlikely to impact surface or ground water quality.	Not likely to be at variance	No
Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."* Assessment: The mapped soil land unit has a low risk of flooding. Given the sandy soils within the application area, the proposed clearing is not expected to cause or exacerbate the incidence or intensity of flooding.	Not likely to be at variance	No

Appendix D. Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Measuring vegetation condition for the South West and Interzone Botanical Province (Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.

Condition	Description
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Appendix E. Offset calculator value justification

Land acquisition/rehabilitation offset for Carnaby's black cockatoos (EN)

Field Name	Description	Justification for value used
Area of impact (habitat/community) or Quantum of impact (features/individuals)	The area of habitat/community impacted, or number of features/individuals impacted	1.25 hectares of native vegetation within a 5-hectare footprint that comprises of moderate quality foraging habitat.
Quality of impacted area (habitat/community)	The quality score for area of habitat/community being impacted - a measure of how well a particular site supports a particular threatened species or ecological community and contributes to its ongoing viability	7 – *Eucalyptus marginata* (jarrah) and 12 banksia trees (*Banksia attenuata* (and *Banksia menziesii*) scattered throughout the application area. Other proteaceous and myrtaceous species also identified in degraded state. Application area is located within the buffer zone of 18 black cockatoo roost sites. The closest mapped breeding site is 5.8 km from application area.
Time over which loss is averted (habitat/community)	This describes the timeframe over which changes in the level of risk to the proposed offset site can be considered and quantified	20 - the offset site will be conserved in perpetuity under a conservation covenant. 20 years is the maximum value associated with this field.
Time until ecological benefit (habitat/community) or Time horizon (features/individuals)	This describes the estimated time (in years) that it will take for the main benefit of the quality (habitat/community) or value (features/individuals) improvement of the proposed offset to be realised	17 – It is estimated that the Banksia species being planted as part of revegetation activities will take 15 years to mature enough o be used as foraging recourse. Two years has also been allowed for the rehabilitation activities to commence.
Start area (habitat/community) or Start value (features/individuals)	The area of habitat/community or number of features/individuals proposed to offset the impacts	5.80 hectares - an area of 5.80 is required to counterbalance the significant residual impact to Carnaby's foraging habitat by 100 per cent.
Start quality (habitat/community)	The quality score for the area of habitat/community proposed as an	7 – Majority of the vegetation is in very good condition (Keighery,

	offset - a measure of how well a particular site supports a particular threatened species or ecological community and contributes to its ongoing viability	1994) with the site comprising of banksia species throughout. Only one roost site within the 12km radius and no breeding sites. Evidence of Carnaby's foraging and a feather identified within the offset site.
Future quality without offset (habitat/community) or Future value without offset (features/individuals)	The predicted future quality score (habitat/community) or value (features/individuals) of the proposed offset site without the offset	7 - no significant change expected without an offset.
Future quality with offset (habitat/community) or Future value with offset (features/individuals)	The predicted future quality score (habitat/community) or value (features/individuals) of the proposed offset site with the offset	8 - On-ground management (infill planting) has been proposed as part of the offset, to at least maintain or improve the current foraging habitat condition and thus the site's foraging quality. infill planting would be undertaken in accordance with a revegetation plan that is prepared for the site. A conservation covenant will reduce the risk in decline in foraging quality as a result of clearing for exempt purposes and allow broader-scale threat management to occur. fire and unauthorised access is controlled through management measures.
Risk of loss (%) without offset (habitat/community)	This describes the chance that the habitat/community on the proposed offset site will be completely lost (i.e. no longer hold any value for the protected matter of concern) over the foreseeable future without an offset	15% - the offset area is located within a rural zoning under the Shire of Dandaragan Local Planning Scheme No. 7, and this is consistent with other decision making by the department.
Risk of loss (%) with offset (habitat/community)	This describes the chance that the habitat/community on the proposed offset site will be completely lost (i.e. no longer hold any value for the protected matter of concern) over the foreseeable future with an offset	5% - conservation covenant would reduce the risk of loss. Risks such as fire still remains.
Confidence in result (%)	The capacity of measures to mitigate risk of loss of the proposed offset site	90% - high confidence given the vegetation is already established and an offset site management plan is prepared.
% of impact offset	% of the significant residual impact that would be offset by the proposed offset (note: the offset calculations combined should equate to 100% for each residual impact)	100% - Obtained through the input of variables explained above.

Appendix F. Biological survey information excerpts and photographs of the vegetation (MBS Environmental, 2023a) (MBS environmental, 2024) (MBS Environmental, 2022)

Figure 2: Habitat trees and areas of Banksia trees mapped within the application area.

Table 1: The vegetation type mapped within the application area.

Vegetation Type	Description	Photograph
Eucalyptus marginata (Jarrah) Open Woodland	An open woodland of *Eucalyptus marginata* over *Xanthorrhoea preissii* and mixed shrubs and an understorey of *Desmocladus flexuosus* and weedy herbs and grasses.	

Figure 3: Photograph of the application area

Quadrat No.:	**Q1**
Survey Date:	21/10/2020
Personnel:	SH, RW
Latitude:	386244.4
Longitude:	6494408.8
Location:	Flynn Dr
Topography:	Upper slope
Aspect:	South-west
Slope:	1-3%
Soil:	Brown sand
Gravel	0%
Rock:	0%
Leaf Litter:	30%
Bare Ground:	1%
Drainage:	Well
Condition:	Very Good

Notes: *Eucalyptus marginata* (Jarrah) Open Woodland

Native Species	Height (m)	Cover (%)	Weed Species	Height (m)	Cover (%)
Bossiaea eriocarpa	0.1	1	**Briza maxima*	0.2	3
Conostephium pendulum	0.1	0.1	**Bromus diandrus*	0.3	0.1
Conostylis aculeata	0.2	0.1	**Carpobrotus edulis*	0.1	1
Conostylis juncea	0.1	0.1	**Ehrharta calycina*	1	3
Desmocladus flexuosus	0.2	50	**Ehrharta longiflora*	0.3	1
Drosera erythrorhiza	0.1	0.1	**Lysimachia arvensis*	0.1	0.1
Eremaea pauciflora	0.5	0.5	**Medicago polymorpha*	0.1	0.1
Eucalyptus marginata	12	50	**Pelargonium capitatum*	0.1	0.1
Gastrolobium capitatum	0.1	0.1	**Silene gallica*	0.1	0.1
Gompholobium tomentosum	0.3	0.5	**Trifolium arvense*	1	1
Haemodorum spicatum	1.5	0.1	**Trifolium campestre*	0.1	1
Hibbertia hypericoides	0.5	1	**Wahlenbergia capensis*	0.4	0.1
Hypocalymma robustum	0.5	3			
Hypolaena exsulca	0.5	0.1			
Kennedia prostrata	0.1	3			
Lomandra caespitosa	0.1	0.1			
Lomandra hermaphrodita	0.1	0.1			
Patersonia occidentalis	0.5	0.5			
Petrophile linearis	0.1	0.1			
Philotheca spicata	0.3	0.5			
Pimelea ferruginea	0.5	0.5			
Xanthorrhoea preissii	1.5	4			

Figure 4: Data collected from Quadrat 1 of the application area during the flora and vegetation survey

Quadrat No.:	**Q2**
Survey Date:	21/10/2020
Personnel:	SH, RW
Latitude:	386136.0
Longitude:	6494409.7
Location:	Flynn Dr
Topography:	Mid slope
Aspect:	South-west
Slope:	1-3%
Soil:	Grey brown sand
Gravel	0%
Rock:	0%
Leaf Litter:	70%
Bare Ground:	5%
Drainage:	Well
Condition:	Good

Notes: *Eucalyptus marginata* (Jarrah) Open Woodland

Native Species	Height (m)	Cover (%)	Native Species	Height (m)	Cover (%)
Alexgeorgea nitens	0.1	0.1	*Mesomelaena pseudostygia*	0.5	0.5
Banksia attenuata	10	5	*Morelotia octandra*	0.5	1
Bossiaea eriocarpa	0.2	2	*Opercularia vaginata*	0.1	0.5
Brachyloma preissii	0.5	1	*Petrophile linearis*	0.2	0.1
Conostephium pendulum	0.1	0.1	*Poranthera microphylla*	0.1	0.1
Conostylis aculeata	0.2	0.5	*Ptilotus manglesii*	0.1	0.5
Daviesia nudiflora	0.5	0.5	*Rytidosperma occidentale*	0.3	0.1
Desmocladus flexuosus	0.2	5	*Scaevola repens*	0.1	0.1
Disa bracteata	0.1	0.1	*Stirlingia latifolia*	0.5	2.5
Eucalyptus marginata	12	40	*Stylidium androsaceum*	0.1	0.1
Gastrolobium capitatum	0.1	0.1	*Xanthorrhoea preissii*	1.5	4
Gompholobium tomentosum	0.1	0.1			
Haemodorum paniculatum	0.1	0.1	**Weed Species**	**Height (m)**	**Cover (%)**
Hibbertia hypericoides	0.3	0.5	**Briza maxima*	0.3	5
Kennedia prostrata	0.1	0.5	**Ehrharta calycina*	0.5	5
Lepidosperma calcicola	0.3	0.5	**Gladiolus caryophyllaceus*	0.3	0.1
Lomandra caespitosa	0.2	0.1	**Ursinia anthemoides*	0.2	0.1
Lomandra hermaphrodita	0.1	0.1	**Wahlenbergia capensis*	0.1	0.1

Figure 5: Data collected from Quadrat 2 of the application area during the flora and vegetation survey

Quadrat No.:	**Q3**
Survey Date:	21/10/2020
Personnel:	SH, RW
Latitude:	386023.8
Longitude:	6494204.0
Location:	Flynn Dr
Topography:	Flat plain
Aspect:	Flat
Slope:	0
Soil:	Brown sand
Gravel	0%
Rock:	0%
Leaf Litter:	50%
Bare Ground:	0%
Drainage:	Well
Condition:	Excellent

Notes: *Eucalyptus marginata* (Jarrah) Open Woodland

Native Species	Height (m)	Cover (%)	Native Species	Height (m)	Cover (%)
Acacia pulchella	0.1	0.1	*Patersonia occidentalis*	0.1	2
Alexgeorgea nitens	0.1	0.1	*Philotheca spicata*	0.4	0.5
Banksia dallanneyi	0.1	0.1	*Scaevola repens*	0.1	0.1
Bossiaea eriocarpa	0.3	2	*Stirlingia latifolia*	0.5	1
Brachyloma preissii	0.5	1	*Stylidium androsaceum*	0.1	0.1
Conospermum stoechadis	0.5	0.5	*Morelotia octandra*	0.3	2
Conostylis aculeata	0.3	1	*Thelymitra macrophylla*	0.1	0.1
Conostylis juncea	0.1	0.1	*Thysanotus sparteus*	0.1	0.1
Dampiera linearis	0.3	0.5	*Trachymene pilosa*	0.1	0.1
Daviesia triflora	0.5	0.5	*Xanthorrhoea preissii*	1.5	10
Desmocladus flexuosus	0.1	10	*Xanthosia huegelii*	1	0.1
Eucalyptus marginata	12	40			
Gastrolobium capitatum	0.2	0.5			
Gompholobium tomentosum	0.1	0.5	**Weed Species**	**Height (m)**	**Cover (%)**
Pterostylis sp.	0.1	0.1	**Briza maxima*	0.3	0.1
Hovea trisperma	0.1	0.1	**Gladiolus caryophyllaceus*	0.5	0.1
Hyalosperma cotula	0.1	0.1	**Sonchus oleraceus*	0.1	0.1
Hybanthus calycinus	0.2	0.1	**Urospermum picroides*	0.1	0.1
Kennedia prostrata	0.1	0.5			
Lagenophora huegelii	0.1	0.1			
Lomandra hermaphrodita	0.1	0.1			
Lyginia imberbis	0.5	0.5			
Mesomelaena pseudostygia	0.5	0.5			

Figure 6: Data collected from Quadrat 1 of the application area during the flora and vegetation survey

Tree No.	Tree Species	DBH (mm)	GPS coordinates	Comments
1	*Eucalyptus marginata*	1700	115.799423; -31.680573	No hollows
2	*Eucalyptus marginata*	1850	115.799753; -31.680135	No hollows
3	*Eucalyptus marginata*	1500	115.800075; -31.680171	Galah nesting
4	*Eucalyptus marginata*	700	115.798937; -31.680619	No hollows
5	*Eucalyptus marginata*	1000	115.799015; -31.680421	No hollows

Tree No.	Tree Species	DBH (mm)	GPS coordinates	Comments
6	*Eucalyptus marginata*	850	115.798810; -31.680100	Small hollow
7	*Eucalyptus marginata*	1075	115.798910; -31.679681	Striated Pardalote nesting in small hollow, 1 potential hollow
8	*Eucalyptus marginata*	850	115.798660; -31.680142	Small hollow
9	*Eucalyptus marginata*	1800	115.797717; -31.679995	Small hollow
10	*Eucalyptus marginata*	1200	115.797622; -31.680749	3 potential hollows, No. 1 with bees
11	*Eucalyptus marginata*	1550	115.797643; -31.682513	No hollows

Tree 7, Hollow 1 | Tree 10, Hollow 1 | Tree 10, Hollow 2

Figure 7: Attributes of the habitat trees identified from the application area and photographs of inside the hollows identified within the trees proposed for clearing.

Offset Area

Plate 4. Firewood Banksia (*Banksia menziesii*) cones chewed by Carnaby's Black-Cockatoo

Image 1: Photo of evidence of use of the offset area by Carnaby's black cockatoos

Plate 1. Representative photograph of VSA 1 (Banksia Open, Low Woodland). This photograph is from the south-west corner and is approximately 3 years post fire.

Image 2: Photograph of the offset area.

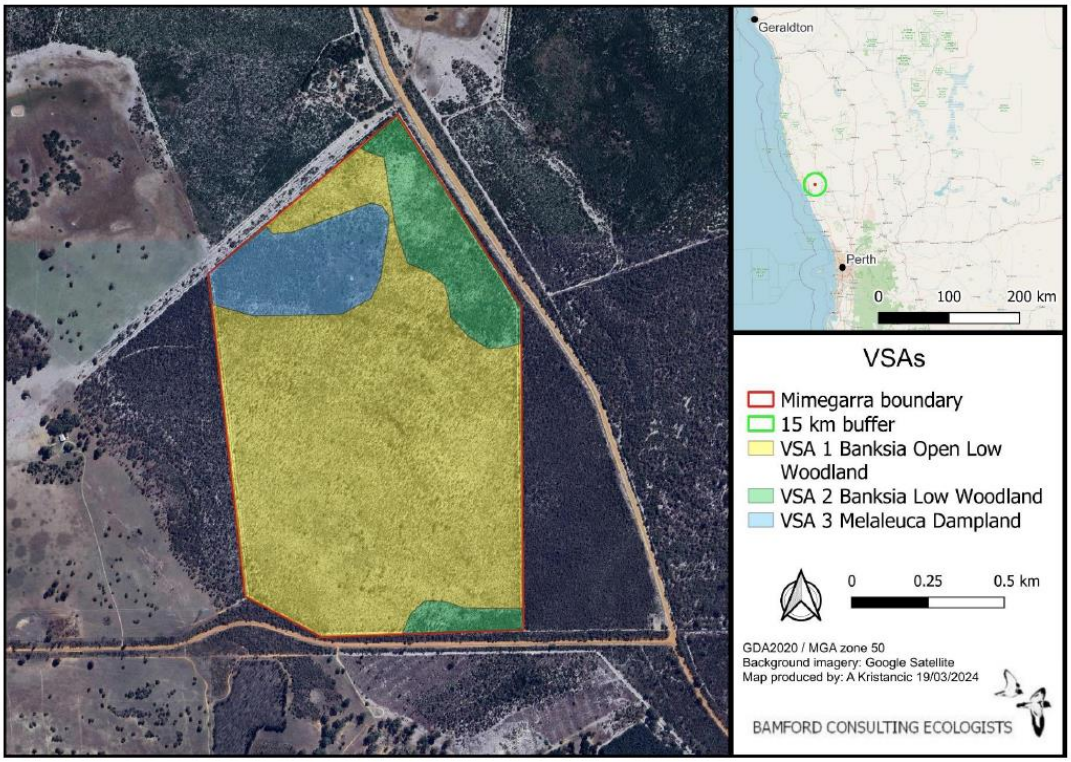

Figure 3-1. Distribution of VSAs within the project area.

Figure 8: Vegetation type mapped within Lot 2 on Deposited Plan 8964, Mimegarra Road, Mimegarra

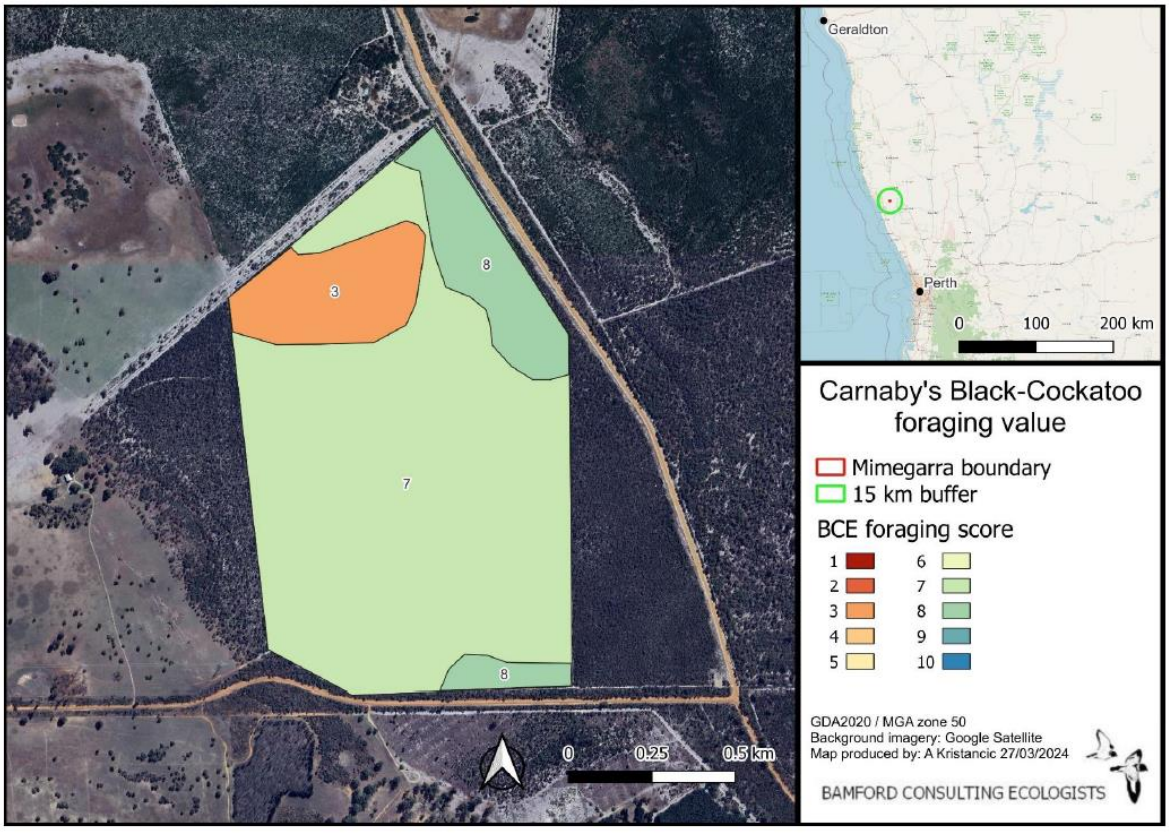

Figure 3-2. Distribution of foraging scores (HQS out of 10) for Carnaby's Black-Cockatoo.

Figure 9: Carnaby's black cockatoo foraging value identified within the Lot 2 on Deposited Plan 8964, Mimegarra Road, Mimegarra

Appendix G. Sources of information

G.1. GIS databases

Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems
- Wheatbelt Wetlands Stage 1 (DBCA-021)

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

G.2. References

Alvito Pty Ltd (2022) Clearing permit application CPS 9722/1, received 03 May 2022 (DWER Ref: DWERDT598492).

Atlas of Living Australia (n.d) Leioproctus (Colletopsis) contrarius Michener, 1965. Available at Leioproctus (Colletopsis) contrarius : A Short-Tongued Bee | Atlas of Living Australia

Australian Museum. (2020). Peregrine Falcon. Government of New South Wales. Available at: https://australianmuseum.net.au/learn/animals/birds/peregrine-falcon/.

ATA Environmental (2007) Consultant's Report: Flora, Vegetation and Vertebrate Fauna Assessment; Lot 5, Neerabup. ATA Environmental. DER Ref: A587113

Commonwealth of Australia (2001) *National Objectives and Targets for Biodiversity Conservation 2001-2005*, Canberra.

City of Wanneroo (2022) *Advice for clearing permit application CPS 9722/1*, received 15 June 2022 (DWER Ref: DWERDT618486).

Department of Agriculture, Water and the Environment (DAWE) (2008) Approved Conservation Advice for Synemon gratiosa (Graceful Sun Moth), Available at Approved conservation advice for Synemon gratiosa (Graceful Sun Moth)

Department of Agriculture, Water and the Environment (DAWE) (2022), Referral guideline for 3 WA threatened black cockatoo species: Carnaby's cockatoo, Baudin's cockatoo and the Forest Red-tailed Black-cockatoo, Department of Agriculture, Water and the Environment, Canberra, February

Department of Biodiversity, Conservation and Attractions (DBCA). (2012). Western Brush Wallaby *Macropus irma* (Jourdan, 1837). Retrieved from https://library.dbca.wa.gov.au/static/FullTextFiles/071535.pdf

Department of Biodiversity, Conservation and Attractions (DBCA) (2023) *Species and Communities Branch TEC/flora/fauna advice for clearing permit application CPS 9722/1*, received 17 March 2023. Department of Biodiversity, Conservation and Attractions, Western Australia (DWER Ref: DWERDT753845).

Department of Environment and Conservation (DEC) (2013) Threatened Ecological Community Advice for Clearing Permit CPS 5362/1. Species and Communities Branch. Department of Environment and Conservation, Western Australia. DER Ref: A628444, A672155.

Department of the Environment and Energy (DEE) (2016) Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain ecological community. Conservation Advice approved 26 August 2016. Listing effective 16 September 2016. Accessed 02 December 2024.

Department of Environment Regulation (DER) (2013). *A guide to the assessment of applications to clear native vegetation*. Perth. Available from: https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf.

Department of Parks and Wildlife (Parks and Wildlife) (2013) Carnaby's cockatoo (*Calyptorhynchus latirostris*) Recovery Plan. Western Australian Wildlife Management Program No. 52. Department of Parks and Wildlife Locked Bag 104, Bentley Delivery Centre, Perth, WA 6983.

Department of Primary Industries and Regional Development (DPIRD) (2019). *NRInfo Digital Mapping. Department of Primary Industries and Regional Development.* Government of Western Australia. URL: https://maps.agric.wa.gov.au/nrm-info/ (accessed 08 August 2024).

Department of Water and Environmental Regulation (DWER) (2019). *Procedure: Native vegetation clearing permits*. Joondalup. Available from: https://dwer.wa.gov.au/sites/default/files/Procedure_Native_vegetation_clearing_permits_v1.PDF.

Department of Water and Environmental Regulation (DWER) (Regulatory Services – Water) (2022) *Rights in Water and Irrigation Act 1914 advice for clearing permit application CPS 9722/1*, received 09 November 2022 (DWER Ref: DWERDT684196).

Environmental Protection Authority (EPA) (2016). *Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment*. Available from: http://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey_Dec13.pdf.

Environmental Protection Authority (EPA) (2016). *Technical Guidance – Terrestrial Fauna Surveys.* Available from: https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/Tech%20guidance-%20Terrestrial%20Fauna%20Surveys-Dec-2016.pdf.

Government of Western Australia (2019) *2018 South West Vegetation Complex Statistics. Current as of March 2019*. WA Department of Biodiversity, Conservation and Attractions, Perth, https://catalogue.data.wa.gov.au/dataset/dbca

Government of Western Australia. (2019) *2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019.* WA Department of Biodiversity, Conservation and Attractions. https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics

Heddle, E. M., Loneragan, O. W., and Havel, J. J. (1980) *Vegetation Complexes of the Darling System, Western Australia*. In Department of Conservation and Environment, Atlas of Natural Resources, Darling System, Western Australia.

Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Mattiske, E.M. and Havel, J.J. (1998) *Vegetation Complexes of the South-west Forest Region of Western Australia.* Maps and report prepared as part of the Regional Forest Agreement, Western Australia for the Department of Conservation and Land Management and Environment Australia.

MBS Environmental (2022) *Supporting information for clearing permit application CPS 9722/1,* received 17 May 2022 (DWER Ref: DWERDT604546).

MBS Environmental (2023a) Response to the request for further information letter dated 15 November 2022, received 09 January 2023 (DWER Ref: DWERDT708942)

MBS Environmental (2023b) Response to the request for further information letter dated 19 April 2023, received 16 November 2023 (DWER Ref: DWERDT868247)

MBS Environmental (2024) Offset proposal to support the clearing permit application CPS 9722/1, received 27 March 2024 (DWER Ref: DWERDT928003)

Molloy, S., Wood, J., Hall, S., Wallrodt, S. and Whisson, G. (2009) *South West Regional Ecological Linkages Technical Report*, Western Australian Local Government Association and Department of Environment and Conservation, Perth.

Schoknecht, N., Tille, P. and Purdie, B. (2004) *Soil-landscape mapping in South-Western Australia – Overview of Methodology and output*s Resource Management Technical Report No. 280. Department of Agriculture.

Shah, B. (2006) *Conservation of Carnaby's Black-Cockatoo on the Swan Coastal Plain, Western Australia*. December 2006. Carnaby's Black-Cockatoo Recovery Project. Birds Australia, Western Australia.

Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) *Native Vegetation in Western Australia, Extent, Type and Status*. Resource Management Technical Report 249. Department of Agriculture, Western Australia.

Valentine, L.E. and Stock, W. (2008) *Food Resources of Carnaby's Black Cockatoo (Calyptorhynchus latirostris) in the Gnangara Sustainability Strategy Study Area*. Edith Cowan University and Department of Environment and Conservation. December 2008.

Western Australian Herbarium (1998-). *FloraBase - the Western Australian Flora*. Department of Biodiversity, Conservation and Attractions, Western Australia. https://florabase.dpaw.wa.gov.au/ (Accessed 02 December 2024)